

AMENDMENTS TO THE CLAIMS

The following claim listing replaces all prior listings and versions thereof.

1. (Currently Amended) A retractable lens comprising:

a plurality of optical components including a first optical element, a second optical element and a third optical element which are positioned on an optical axis in a ready state of said lens, at least said first optical element and said second optical element being movable independently in said optical axis direction; and

a support frame which supports said second optical element, and has a generally ring-shaped portion and at least one radial arm portion, wherein said ring-shaped portion substantially surrounds said optical axis, and wherein said radial arm portion projects radially outwards from a rear end of said ring-shaped portion such that an outer end of said radial arm portion is guided in said optical axis direction, said second optical element supported in a front end portion of said ring-shaped portion,

wherein, when said retractable lens moves from said ready state to a retracted state, said third optical element is positioned in said ring-shaped portion while said first optical element is retracted from an on-axis position on said optical axis into an off-axis space radially outside said ring-shaped portion such that said first ~~lens-group~~ optical element is positioned radially outside said second optical element and said third optical element.

2. (Original) The retractable lens according to claim 1, wherein said third optical element is immovable in said optical axis direction, and

wherein said support frame moves rearward and reduces distance between said second optical element and said third optical element when said retractable lens moves from said ready state to said retracted state.

3. (Original) The retractable lens according to claim 1, further comprising:

a housing having a ring portion in which said ring-shaped portion of said support frame is positioned; and

at least one guide shaft positioned outside said ring portion and extends generally parallel to said optical axis,

wherein said radial arm portion projects radially outwards to an extent wherein an outer end of said radial arm portion is positioned radially outside said ring portion, said radial arm portion configured to be guided in said optical axis direction via said guide shaft.

4. (Original) The retractable lens according to claim 3, wherein said radial arm portion comprises a pair of radial arm portions positioned at different angular positions relative to said optical axis, and wherein said guide shaft comprises a pair of guide shafts positioned at said different angular positions relative to said optical axis.

5. (Original) The retractable lens according to claim 3, further comprising at least one rotatable ring which is rotatable about a rotational axis extending in a direction of said optical axis, wherein movement of said first optical element is controlled by rotation of said rotatable ring.

6. (Original) The retractable lens according to claim 1, wherein said ring-shaped portion of said support frame is configured to prevent unnecessary light from being incident on said third optical element.

7. (Original) The retractable lens according to claim 1, wherein said first optical element, said second optical element and said third optical element comprise a front lens group, a middle lens group and an image pick-up device, respectively.

8. (Original) The retractable lens according to claim 7, further comprising a lens group positioned in front of said front lens group,

wherein said lens group and said front lens group are moveable along said optical axis while changing the distance therebetween and to perform a focal-length varying operation in said ready state, and

wherein said middle lens group is moveable along said optical axis via said support frame and perform a focusing operation.

9. (Original) The retractable lens according to claim 8, wherein said lens group, which is positioned in front of said front lens group, is adjacent to said middle lens group in said optical axis direction in said retracted state.

10. (Original) The retractable lens according to claim 3, wherein said housing is a stationary barrel fixed to a camera body.

11. (Original) The retractable lens according to claim 1, wherein said ring-shaped portion is a substantially rectangular ring shape.

12. (New) A digital camera having a body, an image pickup device and a retractable lens, the image pickup device and retractable lens housed within the body, the retractable lens comprising:

a plurality of optical components including a first optical element, a second optical element and a third optical element which are positioned on an optical axis in a ready state of

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said lens, at least said first optical element and said second optical element being movable independently in said optical axis direction; and

a support frame which supports said second optical element, and has a generally ring-shaped portion and at least one radial arm portion, wherein said ring-shaped portion substantially surrounds said optical axis, and wherein said radial arm portion projects radially outwards from a rear end of said ring-shaped portion such that an outer end of said radial arm portion is guided in said optical axis direction, said second optical element supported in a front end portion of said ring-shaped portion,

wherein, when said retractable lens moves from said ready state to a retracted state, said third optical element is positioned in said ring-shaped portion while said first optical element is retracted from an on-axis position on said optical axis into an off-axis space radially outside said ring-shaped portion such that said first optical element is positioned radially outside said second optical element and said third optical element.

13. (New) The camera according to claim 12, wherein said third optical element is immovable in said optical axis direction, and

wherein said support frame moves rearward and reduces distance between said second optical element and said third optical element when said retractable lens moves from said ready state to said retracted state.

14. (New) The camera according to claim 12, further comprising:

a housing having a ring portion in which said ring-shaped portion of said support frame is positioned; and

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at least one guide shaft positioned outside said ring portion and extends generally parallel to said optical axis,

wherein said radial arm portion projects radially outwards to an extent wherein an outer end of said radial arm portion is positioned radially outside said ring portion, said radial arm portion configured to be guided in said optical axis direction via said guide shaft.

15. (New) The camera according to claim 14, wherein said radial arm portion comprises a pair of radial arm portions positioned at different angular positions relative to said optical axis, and wherein said guide shaft comprises a pair of guide shafts positioned at said different angular positions relative to said optical axis.

16. (New) The camera according to claim 14, further comprising at least one rotatable ring which is rotatable about a rotational axis extending in a direction of said optical axis, wherein movement of said first optical element is controlled by rotation of said rotatable ring.

17. (New) The camera according to claim 12, wherein said ring-shaped portion of said support frame is configured to prevent unnecessary light from being incident on said third optical element.

18. (New) The camera according to claim 12, wherein said first optical element, said second optical element and said third optical element comprise a front lens group, a middle lens group and an image pick-up device, respectively.

19. (New) The camera according to claim 18, further comprising a lens group positioned in front of said front lens group,

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wherein said lens group and said front lens group are moveable along said optical axis while changing the distance therebetween and to perform a focal-length varying operation in said ready state, and

wherein said middle lens group is moveable along said optical axis via said support frame and perform a focusing operation.

20. (New) The camera according to claim 19, wherein said lens group, which is positioned in front of said front lens group, is adjacent to said middle lens group in said optical axis direction in said retracted state.

21. (New) The camera according to claim 14, wherein said housing is a stationary barrel fixed in said body.

22. (New) The camera according to claim 12, wherein said ring-shaped portion is a substantially rectangular ring shape.